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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/684,205
Filing Date: October 06, 2000
Appellant(s): HETHERINGTON, JACK H.

John G. Posa
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 5/29/2007 appealing from the Office action mailed 3/2/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 5,598,153	BRASSEUR ET AL.	1-1997
WO 98/50759	DAMMEYER ET AL.	11-1998

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

(A) Claims 1-3, 6, 11, 12, 15, 16, 18, 19, 21, 22, 27, 28, and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 1-3, 6, 18, 19, 21, 22, 27, and 36, since independent claim 1 recites **both** the dielectric element and the elongate member rotating (see lines 9-11 of claim 1), it is not clear that a single "**rotation**" in last line is referred to a rotation of the dielectric element **or** a rotation of the elongate member.

As to claims 11, 12, 15, 16 and 28, independent claim 11 recites the limitation "**the elongate member**" in lines 16 and 17. There is insufficient antecedent basis for this limitation in the claim.

(B) Claims 1-3, 6, 18, 19, 21, 22, 27, 28 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claims 1-3, 6, 18, 19, 21, 22, 27, and 36, the disclosure, when filed, does not fairly convey to one of ordinary skill in the art that applicants had in their possession the claimed limitation, "an output for communicating **rotation** to the utilization device" presently recited in last line of independent claim 1. The original claims 1 and 11 recite "an output for communicating **the user position** to the utilization device", which is different from the above underlined limitation. Further, The specification from **page 13, line 3 to page 16, line 12**, merely discloses a position sensor measuring x displacement, y displacement and angular **position of a non-axially asymmetric disk 510 (note that the disk 510 corresponds to the claimed dielectric element, not the claimed elongate member)** and thus outputting the position of the dielectric disk 510 (the claimed dielectric element) to a utilization device. Further, see Abstract

and the specification, page 12, lines 4-7. Also, note that the original disclosure does not explicitly teach to output **the rotation or position of the elongate member** to a utilization device. Accordingly, the mentioned disclosure does not fairly teach an output for communicating **rotation of the elongate member and/or rotation of the dielectric element** to a utilization device.

Additionally to claim 27, the disclosure, when filed, does not fairly convey to one of ordinary skill in the art that applicants had in their possession the claimed limitation, "the dielectric element has a periphery described by: $\mathbf{r(\theta)} = r_0 + a_2\cos(2\theta) + a_3\cos(3\theta)$". The specification, page 13, lines 15-17, teaches the **expression** $\mathbf{r(\theta)} = r_0 + a_2\cos(2\theta) + a_3\cos(3\theta)$; but does not explicitly state this expression being a periphery. Further, the specification, page 13, lines 18-20, discloses the perimeter of the dielectric being approximately $\rho(\theta) = r_0 + x\cos(\theta) + y\sin(\theta) + a_2\cos(2(\theta+\phi)) + a_3\cos(3(\theta+\phi)$. Moreover, a person of ordinary skill in the art normally uses the same symbol to represent for the same variable or function and, in science, r is normally used to represent for a radius of an enclosed shape such as a circle, an ellipse, or etc. For the above reasons, the original disclosure does not contain such description and details regarding to the above underlined limitation of claim 27, so as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claim 28, see the rejection to claim 27 above.

(C) Claims 1-3, 6, 11, 12, 15, 16, 18, 19, 21, 22, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dammeyer et al. (WO 98/50759) hereinafter Dammeyer, and further in view of Brasseur et al. (US 5,598,153) hereinafter Brasseur.

As to claims 1-3, 11 and 12, Dammeyer discloses a capacitive sensing joystick device configured for interconnection to a computer such as a game controller (see Fig. 1, page 1, first paragraph), comprising an inherent housing having a top surface; **a stationary signal-detecting capacitor plate** (an upper printed circuit board 35, see Fig. 1 or 2, page 4, lines 18-22); **a stationary signal-transmitting capacitor plate** (a lower printed circuit board 40, see Fig. 6, page 6, lines 22-25) spaced apart from the signal-detecting capacitor plate (35) by spacers (45) (see Fig. 1, page 4, lines 6-7) and divided into a plurality of electrically separated segments (plates P9-P12) (see Fig. 6, page 6, lines 22-25); **a movable dielectric member** (a dielectric disk **30**) (see Fig. 1 or 2, page 4, lines 4-7); **an elongate member** (of claim 1) or **a joystick lever** (of claim 11) (**a control handle 10** including a shaft 15 and a pivot assembly 20, see Fig. 1, page 4, lines 2-4) supported for pivotal movement having a proximal end for user engagement and a distal end which inherently extends through the top surface of the housing and extends through the signal-detecting capacitor plate (35) (see Fig. 1 or 2, page 4, lines 11-16), being operative to rotate and laterally shift the dielectric element (30) in x and y directions in a plane substantially parallel to the stationary plates (35, 40) as a function of the user position (see Figs. 4 and 5, page 6, line 3 through page 7, line 18); **a circuitry** (as shown in Fig. 7) in electrical communication with the stationary plates, the circuitry being operative to (a) measure the capacitance between each segment (P9-P12) of the signal-transmitting plate (40) and the signal-detecting plate (35), (b) determine the position of the elongate member (10) in the x and y directions as a function of the measured capacitance (see Fig. 7, page 6, line 22 through page 7, line 18), and (c) determine rotation of the elongate member as a function of the measured capacitance (by virtue of Fig. 5 the description on page 6, lines 15-21, Dammeyer teaches the elongate member (10) laterally

shifting the dielectric element (30) and both the elongate member (10) and the dielectric element (30) rotating around the reference location (75) such that a center of the opening 50 of the dielectric element (30) travels on a circle having a center at the reference location 75. Further, by virtue of the Abstract and the description, page 6, lines 29 to page 7, line 10, Dammeyer teaches the circuit determining the rotation of the dielectric element (30) and the rotation of the elongate member (10) as a function of the measured capacitance to produce the X and Y position information, which includes the rotation information of the dielectric element and the elongate member corresponding to the rotation of the dielectric element and the elongate member); and **an output** for communicating the X and Y positions including rotation of the elongate member to the game controller (Fig. 7, page 1, first paragraph). Dammeyer further teaches that the dielectric element (30) can have other shapes (see page 4, lines 9-10). Accordingly, Dammeyer discloses all limitations of these claims except that Dammeyer does not explicitly teach the dielectric element having a shape of non-circular, as presently claimed.

However, Brasseur discloses a related capacitive sensor (see fig. 1) comprising a movable dielectric element (3) (see Figs. 1 and 2). Brasseur further teaches that the size and the shape of the dielectric element (a rotor 3, col. 3, lines 32-33) dependant upon the number of segments (sectors S) of the stationary signal-transmitting capacitor plate (2), e.g., if a number of segments (sectors S) of the stationary signal-transmitting capacitor plate (2) is four (Fig. 1), the dielectric member (3) may have a shape of semicircular (i.e., non-circular) (see col. 3, lines 56-61). Brasseur further teaches that the motivation for using non-circular shape of dielectric element would improve an accuracy of measured capacitance and the position of the dielectric element (see col. 2, lines 45-52). Therefore, it would have been obvious to a person of ordinary skill in

the art at the time of the invention was made to change the shape of the Dammeyer dielectric member to a non-circular shape, in view of the teaching in the Brasseur reference, because this would improve an accuracy of measured capacitance and the position of the dielectric element, as taught by Brasseur (see col. 2, lines 45-52).

As to claims 6, 15, 16, 19 and 36, Dammeyer discloses the electrically separated segments (P9-P12) of the signal-transmitting plate (40) being arcuate (Fig. 6).

As to claim 18, as discussed in the rejection to claim 1 above, both Dammeyer and Brasseur disclose that the dielectric member can have other shapes. While both Dammeyer and Braaseur may not exemplify the particular shape of the dielectric element to be oval or egg-shaped as claimed, one of ordinary skill in the art would have found it obvious to shape the dielectric element of Dammeyer as desired as was judicially recognized in re Dailey, 149 USPQ 47 (CCPA 1976).

As to claim 21, Dammeyer discloses that the elongated member (10) includes a pivoting (a pivot assembly 20) between the first and second ends of the elongated member (see Fig. 1, page 4, first paragraph) and the distal end of the elongated member is loosely coupled to the dielectric element (30) so that the dielectric element remains in a plane substantially parallel to the stationary plates (35, 40) as the dielectric element (30) is rotated or laterally shifted (see Figs. 1 and 5, page 6, lines 7-21).

As to claim 22, Dammeyer discloses that the movement of the dielectric element (30) is constrained by the spacing of stationary plates (35, 30) so that the dielectric element remains in a plane substantially parallel to the stationary plates (35, 40) as the dielectric element (30) is rotated or laterally shifted (see Figs. 1 or 2, page 4, lines 4-9).

(10) Response to Argument

A. With respect to the rejection of claims 1-3, 6, 11, 12, 15, 16, 18, 19, 21, 22, 27, 28 and 36 under 35 USC 112, second paragraph, Appellant's arguments, see pages 3-4 of the appeal brief, have been fully considered but they are not persuasive because as follows:

(i) With regard to independent claim 11, Appellant states that "the elongate member" has been changed to "joystick lever". Examiner disagrees because there is no such amendment to claim 11 being made in the record. Also, see claim 11 in the Appendix A section.

(ii) With regard to independent claim 1, Appellant states that **"rotation" in the last line** clearly indicate both a rotation of the elongate member and a rotation of the dielectric element. Examiner disagrees because (1) claim 1 recites both a rotation of the elongate member and a rotation of the dielectric element in lines 9-16 and while a limitation, "an output for communicating ... rotation to the utilization device" in last line of claim 1 requires **a single "rotation"** communicated to the utilization device. Accordingly, examiner considers the claimed invention being not clearly defined.

B. With respect to the rejection of claims 1-3, 6, 18, 19, 21, 22, 27, 28 and 36 under 35 USC 112, first paragraph, as failing to comply with the written description requirement, Appellants' arguments, see page 4 of the appeal brief, have been fully considered but they are not persuasive because as follows:

(i) Appellant erroneously includes claims 11, 12, 15 and 16 in the argument.

(ii) With regard to independent claim 1, Appellant states that since a joystick, in the embodiment illustrated by Fig. 5, includes a z-axis control referring to the rotational control in

addition to x and y displacements, Appellant's apparatus would not measure a degree of freedom if it was not used to control a utilization device. Further, Appellant states the claimed limitation, "an output for communicating ... **rotation** to the utilization device" filed in the original claims. Examiner disagrees because as follows:

(1) The claimed limitation, "an output for communicating ... **rotation** to the utilization device" was not recited in all original claims

(2) While Examiner agrees with Appellant that the apparatus would not measure a degree of freedom if it was not used to control a utilization device, but this does not imply that the joystick (or the claimed capacitive position sensor) **inherently outputs** the rotation **(of the elongate member)** to the utilization device, as presently claimed. As well recognized by one of ordinary skill in the art, there are a number of different ways to control a utilization device without providing the rotation information of the elongate member to the utilization device, e.g., based on the X and Y position information of the dielectric element, the utilization device with an appropriate software program is capable of recognizing the dielectric element moving in the X-direction (only X position changes during the motion of the dielectric element), Y-direction (only Y position changes during the motion of the dielectric element), or circular motion (both X and Y positions change during the motion of the dielectric element), which is used to control a third degree of freedom

For the above reasons, Examiner believes this rejection is proper.

C. With respect to the rejection of claims 1-3, 6, 11, 12, 15, 16, 19, 21, 22, 27, 28 and 36 under 35 USC 103, over Dammeyer in view of Brasseur, Appellants' arguments, see pages 5-6 of the appeal brief, have been fully considered but they are not persuasive because as follows:

(i) Appellant states that Dammeyer does not teach to measure the rotation and if a user rotates the plate 30, nothing would happen since the capacities would not change; see page 5, second paragraph. Examiner disagrees because by virtue of Fig. 5 the description on page 6, lines 15-21, Dammeyer teaches the elongate member (10) laterally shifting the dielectric element (30) (see Fig. 5) and both the elongate member (10) and the dielectric element (30) rotating around the reference location (75) such that a center of the opening 50 of the dielectric element (30) travels (rotates) on a circle having a center at the reference location 75. Clearly, such rotation causes a change in capacitances. See the detailed rejection above.

(ii) Appellant states "Column 2, lines 45-52 states that an object of the Brasseur invention is to construct an angular displacement transducer which eliminates the disadvantages of known angular displacement transducers.., thus, to the extent the Brasseur apparatus solves such a problem, it is clear from the reference that such improvements are applicable **only** to angular displacement transducers, and not to the Dammeyer system." Examiner disagrees because (1) Brasseur does not state such improvements applicable **only** to angular displacement transducers, as asserted by Appellant and (2) as discussed in the response above, Dammeyer's apparatus is capable of performing a rotational (angular) displacement.

(D) With respect to the rejection of claim 18 under 35 USC 103, over Dammeyer in view of Brasseur, Appellant argues that the oval or egg-shape of the dielectric element is significant; see

pages 6-7 of the appeal brief. Examiner disagrees because **(1)** the pending application discloses a number of dielectric elements having different shapes, e.g., Fig. 1A disclosing a circular shape of a dielectric element (13), Fig. 5A disclosing a non-circular shape of a dielectric element (510), Fig. 10A disclosing another non-circular shape of a dielectric element (1008), and Fig. 14A disclosing another non-circular shape of a dielectric element (1436) and **(2)** the specification, page 13, line 15 to page 16, line 12, describes a measurement corresponding to the shape shown in Fig. 7; however, **the shape shown in Fig. 7 is not an oval or egg-shape** since there is no support in the original disclosure to confirm the dielectric element (shown in Fig. 7) having an **oval or egg-shaped**. For the above reasons, the claimed oval or egg-shape of the dielectric element is not significant.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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